REMARKS

35 U.S.C. 103(a) Rejection of Claims

Claims 1-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Olafsson (U.S. Pat. 6,163,570) in view of Obara (U.S. Pat. 6,304,749).

Applicants respectfully assert that the claims as pending before this amendment were allowable over the prior art of record. However, in order to move prosecution of this case to resolution, Applicants have amended independent claims 1 and 10. In addition, Applicants have added new claims 12-20. Reconsideration is respectfully requested.

The arguments from Applicants' Appeal Brief dated March 28, 2002 are all still applicable to the current rejection. The Examiner uses Olafsson in the rejections of all of the claims under 35 U.S.C. 103(a).

Olafsson expressly teaches the following:

> "the total average transmit power may be computed by the analog modem to ensure that the transmit power of the constellation set does not exceed the maximum transmit power level. However, without an independent verification of the transmit power associated with the signal point constellations, the digital modem may utilize a signal point constellation set that, due to computational errors on the part of the analog modem, exceeds the maximum transmit power limit."

Olafsson, col. 2, lines 9-17 (emphasis added).

The present invention expressly teaches the following:

> "Regardless, by measuring the power level at the analog modem and adjusting the number of equivalence classes a more accurate setting of the transmit power level at the analog modem is possible, as opposed to the level set by estimation of what it is or should be at the digital modem."

Specification, page 5, last paragraph, lines 19-22 (emphasis added).

Olafsson teaches the prior art estimation described in the Specification of the present invention. It is important to note that Olafsson expressly states in the quotation above that

"computing" the total average transmit power is not good enough, which is in agreement with Appellants' description of the prior art. Olafsson's solution to this problem is entirely different than Appellants' solution. Olafsson's solution is to provide " a transmit power verification scheme that accurately verifies the transmit power of a signal point constellation set regardless of the computational resolution of the components used in the two modem devices" (Olafsson, col. 3, lines 2-5). Appellants' solution is to actually measure or detect the transmit power level, thus doing away with the need for Olafsson's additional verification scheme.

Independent claim 1 of the present invention requires "detecting the transmit power level of the analog modem" and independent claim 10 requires "detecting the transmit power level of a modem". Thus the present invention detects or measures what the power level of a modem really is, rather than merely computing an estimated power as is taught in Olafsson. Because the present invention's claimed "detecting" of the actual power level of the modem is accurate enough, unlike the computed estimate taught in Olafsson, the present invention does not require a verification scheme as taught and required by Olafsson. Thus, the present invention, by "detecting the transmit power level of a modem" can directly guarantee conformance to FCC requirements without the need for an added verification scheme as required by Olafsson.

Appellants agree with the Examiner that Olafsson does not explicitly teach the "adjusting" steps of claim 1 and claim 10. Specifically, the "adjusting" step of claim 1 requires "adjusting the transmit power level of the analog modem in accordance with the difference between the detected transmit power level and a desired transmit power level" and the "adjusting" step of claim 10 requires "adjusting the transmit power level at the modem in accordance with the difference between the detected transmit power level at the modem and a desired transmit power level". Olafsson does not suggest the present invention, but in fact teaches away from the present invention by teaching a trail and error approach. Again, the claimed invention can make a direct adjustment here because the actual transmit power level of the modem was detected; unlike Olafsson, which relies on a potentially less trustworthy computational estimate for the transmit power level.

Appellants respectfully note that the technique taught in Olafsson, which requires computing an estimated power of the proposed constellation in advance, is sufficient for the V.90 standard, but cannot be used for the V.92 standard. The reason being that for the V.92 standard, it is impractical to compute in advance what the transmit power will be for a proposed constellation, number of equivalence classes, and precoding coefficients because there is no known method that is accurate enough. Rather, for the V.92 standard, the encoding structure must be implemented and the resulting output power detected over a period of time. The present invention, unlike Olafsson, can be used for the V.92 standard. This is a significant advantage of the present invention over Olafsson.

Thus, Olafsson does not teach any of the steps of independent claims 1 and 10.

There is no suggestion in either Obara or Olafsson as to a reason for combining them.

The Obara patent relates to radio equipment (e.g. mobile telephones), not a PCM modem system as in the present invention. Obara teaches adjusting a transmit power on a continual basis at regular intervals to achieve precise power settings at varying transmit power levels given a calibration at a single power level. The power levels are set with a reduced dependence on accuracy of the analog components.

It is important to note that Obara's mechanism could not be used in place of or in conjunction with the present invention. Rather, by measuring and compensating for transmit power as in Obara, the constellation designed by the digital modem in the present invention would be altered incorrectly and adversely, increasing the effective noise due to quantization at the PCM codec (in the central office (CO)).

Unlike Obara, the present invention involves constellation design in a PCM modem system. In one embodiment, the present invention uses transmit power measurement during the constellation design process as a parameter for constellation design. Neither Obara nor Olafsson teach or even suggest this. Claims 1 and 10 have been amended to specifically state "wherein said detecting and said adjusting are performed during design of a constellation,

and wherein the transmit power level of the analog modem is used as a parameter in the design of the constellation". This is not taught or even suggested by Obara or Olafsson.

Applicants respectfully assert that the dependent claims add further limitations to independent claims and are allowable for at least the same reasons as described herein.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless Applicants have argued herein that such amendment was made to distinguish over a particular reference or combination of references.

Applicants believe the application is in condition for allowance which action is respectfully solicited. Please contact me if there are any issues regarding this communication or the current Application.

Respectfully submitted,

SEND CORRESPONDENCE TO:

Motorola, Inc.
Law Department

Customer Number: 23125

By: Susan C. Hill

Susan C. Hill
Attorney of Record
Reg. No.: 35,896
Telephone: (512) 996-6839
Fax No.: (512) 996-6854

CLAIMS - VERSION WITH MARKINGS TO SHOW CHANGES MADE

1(Twice Amended). In a PCM modem system including an analog modem coupled to a digital modem, a method for controlling the transmit power of the analog modem, comprising the steps of:

detecting the transmit power level of the analog modem; and,

adjusting the transmit power level of the analog modem in accordance with the difference between the detected transmit power level and a desired transmit power level,

wherein said detecting and said adjusting are performed during design of a constellation, and wherein the transmit power level of the analog modem is used as a parameter in the design of the constellation.

10(Twice Amended). In a PCM modem system including an analog modem coupled to a digital modem, a method for controlling the transmit power of either of the modems, comprising the steps of:

detecting the transmit power level of a modem; and,

adjusting the transmit power level at the modem in accordance with the difference between the detected transmit power level at the modem and a desired transmit power level,

wherein said detecting and said adjusting are performed during design of a constellation, and wherein the transmit power level of the analog modem is used as a parameter in the design of the constellation.